

Application No.: 09/687,734
Attorney Docket No.: 2000U026.US
Reply to Office Action of January 13, 2006

REMARKS

Reconsideration of the application is respectfully requested.

Claims 1-4, 6-19, and 21-23 are pending. Claims 5 and 20 are cancelled. New claims 22 and 23 have been added. Claims 1, 10, 15, and 21 have been amended.

Claims 1, 10, and 15 were amended to recite wherein the ligand and the metal compound are contacted with the supported activator as separate components to form the supported catalyst composition. Support for the amendment may be found, for example, on page 5, lines 17-25, and in the inventive examples. The transition terms were also amended to revert back to original claim scope.

Claim 21 was amended to provide proper antecedent basis. Additionally, metal compound was deleted as it did not further narrow the base claim.

New claims 22 and 23 find support, for example, on page 6, lines 29-30.

Applicant respectfully submits that these amendments and new claims add no new matter.

35 U.S.C. § 103

Claims 1-4, 6-19, and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,180,735 ("Wenzel") for the reasons stated on pages 2-4 of the Action.¹ Applicants respectfully disagree.

Although Wenzel's disclosure is extensive, it teaches away from the subject claims. In particular, it suggests combining a *bulky ligand metallocene-type catalyst compound*, an activator, and a carrier to form a supported bulky ligand metallocene-type catalyst system

¹ Applicant points out that 35 U.S.C. § 103(c) would generally obviate the Section 103 rejection as applied here as the application and the patent have a common assignee. However, after further inquiry, Applicant notes that within the U.S. Patent No. 6,180,735 patent family is WO 00/35967, published June 22, 2000; thus, qualifying this publication as prior art under 35 U.S.C. § 102(a) and making the application of 35 U.S.C. § 103(c) unavailable. Therefore, Applicants proceed to respond in substance in light of this publication.

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(col. 4, lines 10-15 and lines 55-65) or as the Action points out mixing a supported activator with a *transitional metal compound*. Other methods are disclosed but all methods necessarily suggest the use of the ligand metallocene type catalyst compound, *i.e.*, containing one or more bulky ligand(s) and one or more leaving group(s) bonded to at least one metal atom (col. 7, lines 11-19), as a component in forming the supported catalyst system.

Wenzel further teaches away in the use of the mineral oil as it does not suggest the use of a mineral oil in the *synthesis of the supported catalyst system* but suggests the use of a mineral oil for other stages of polymerization. For example:

In this preferred method, the bulky ligand metallocene-type catalyst compound is slurried in a liquid to form a metallocene solution and a separate solution is formed containing an activator and a liquid. The liquid may be any compatible solvent or other liquid capable of forming a solution or the like with the bulky ligand metallocene-type catalyst compounds and/or activator of the invention. In the most preferred embodiment the liquid is a *cyclic aliphatic or aromatic hydrocarbon*, most preferably *toluene*.

(Col. 17, lines 25-33) (emphasis added).

And contrast with:

In another embodiment, the polymerization catalyst/carbonyl compound may be contacted with a liquid, such as *mineral oil* and introduced to a polymerization process in a slurry state. In this particular embodiment, it is preferred that the polymerization catalyst is a supported polymerization catalyst.

(Col. 21, lines 34-40) (emphasis added).

As used here, the mineral oil is suggested to be a transport medium to the polymerization process or reactor but not a liquid by which the supported catalyst system is produced. As the passage presupposes, the supported polymerization catalyst has already been produced before it is contacted with the mineral oil.

Additionally, the examples emphasize the suggestion of forming a supported metallocene catalyst system from a *metal complex* in an *aromatic hydrocarbon*, most preferably *toluene*. (Col. 27, line 25, bridging col. 28, line 3). Such methodology suggests to one of ordinary

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skill in the art to prepare a supported catalyst system using as a component, a metallocene, *i.e.*, a complex compound including a metal and at least one ligand, specifically, dimethylsilyl-bis(tetrahydroindenyl)zirconium dichloride, in an aromatic solvent, specifically, toluene, to produce the supported catalyst system. As shown in the examples, the supported catalyst system is then rinsed, vacuumed, and dried.

In contrast, Applicant's claims are not directed to merely a variation in mixing order but a vast departure from what was generally understood in the art in the synthesis of supported catalyst systems. As was generally believed and evidenced by Wenzel, skilled artisans generally accepted that even in light of all the variations in how supported catalyst systems were produced, one common element was that the metal complex, *i.e.*, the metallocene compound of a metal or metal compound and at least one ligand needed to be (as a prerequisite) complexed before being suitable to serve as a component in the synthesis of a supported catalyst system. Such methodology, as further shown by Wenzel, generally required additional steps of using aromatic or cyclic solvents to form slurries followed by rinsing, drying etc.

Surprisingly, Applicant has shown that by using the very building blocks or precursors of such compounds desirable and useful supported catalyst systems may be obtained. Such an approach is contrary to the accepted wisdom and advantageous over the art as it eliminates additional steps of using aromatic solvents to form slurries followed by rinsing, and drying. (*See* MPEP § 2145 X. D. 3. (Proceeding Contrary to Accepted Wisdom Is Evidence of Nonobviousness)). Additionally, such an approach provides for more flexibility and diversity with ligand variation and addition (*see* claims 21-23).

Further, using a slurry of mineral oil to prepare the supported catalyst system provides for the simplicity of direct transport to the polymerization process or reactor after catalyst system synthesis. Thus, all of these advantages, either taken individually or as a whole, represent a substantial advancement in the art. As such, Applicant respectfully submits that the subject claims would not be obvious over Wenzel.


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Applicant respectfully requests that all rejections be withdrawn and solicits a prompt notice of allowability. In the alternative, Applicant invites the Office to telephone the undersigned attorney if there are any other issues outstanding which have not been presented to the Office's satisfaction.

Respectfully submitted,

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